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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/595,791

05/11/2006

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EXAMINER

PATEL, DEVANG R

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

02/20/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/595,791	SEMMLINGER ET AL.	
	Examiner	Art Unit	
	DEVANG PATEL	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/11/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 1-2, 13, and 14-16** are rejected under 35 U.S.C. 102(b) as being anticipated by Takagi et al. (US 3954215).
 - a. **Regarding claim 1**, Takagi et al. discloses a friction welding machine (fig. 1) including frame 2, main platform 3 (i.e. first headstock) with spindle 9 having a workpiece holder 12 and a spindle drive 1; feed drive 19 with second workpiece holder 28; and the machine having a another platform 15 (i.e. second headstock) with spindle 24, spindle drive 20; the second headstock is mounted axially movably on frame 2 and is connected to feed drive 19.
 - b. **As to claim 2**, Takagi et al. discloses that the main platform 3 is fixedly mounted on bed 2 (i.e. stationary; col. 2, line 60).
 - c. **Regarding claim 13**, Takagi et al. discloses feed drive 19 mounted and supported at column 18 of frame 2.

- d. **As to claim 14**, Takagi et al. discloses column 18 and stationary headstock 3 connected by tie rod 17.
- e. **As to claim 15**, Takagi et al. discloses the feed drive being a hydraulic cylinder 47 (fig. 6).
- f. **As to claim 16**, Takagi et al. discloses electric drive motor 1.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

- 1. Determining the scope and contents of the prior art.
- 2. Ascertaining the differences between the prior art and the claims at issue.
- 3. Resolving the level of ordinary skill in the pertinent art.
- 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

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not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. **Claims 3-5** are rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al.

g. **Regarding claims 3 & 4**, the apparatus of Takagi et al. is adapted to work with different materials and sizes of the workpieces (col. 5, line 60). Accordingly, the spindles would have to be of different sizes to be compatible with a variety of workpieces. It would have been obvious to a person of ordinary skill in the art to supply spindles of different sizes in the friction welding machine of Takagi et al. because it provides the flexibility of welding workpieces of different sizes.

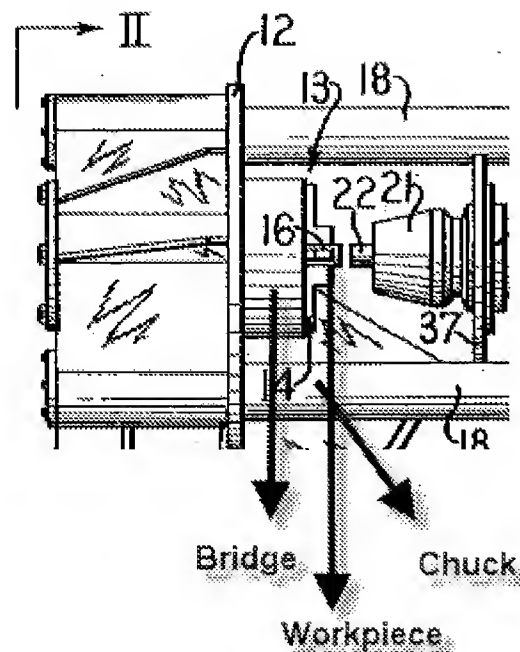
h. **As to claim 5**, the rotation and moment of inertia of second spindle are controlled in order to adjust the friction welding energy under welding conditions such as material and diameter of workpieces (col. 4, lines 25-60). This implies that either spindle drive can have lower load and thus, be weaker than the other. Both spindle systems quickly synchronize with each other, and the variation of sum of the lengths of both workpieces after welding can be reduced to minimum (line 48). It would have been obvious to one skilled in the art to have weaker spindle drive to accommodate varying workpieces and selectively control the process as shown by Takagi et al. because doing so improves the quality of welded workpieces.

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8. **Claims 6-7, 11, and 17-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al. as applied to claim 1 above, and in view of Gordon et al. (US 3536242).

i. **Regarding claims 6-7**, Takagi et al. does not disclose the workpiece holder having a bridge to support the forge force and torque. However, Gordon et al. (drawn to friction welding machine with tailstock and spindle assembly) discloses the chuck 14 (i.e. workpiece holder) having a bridge (Fig. 1), as shown in following drawing, that supports the forge force and torque. It would have been obvious to an artisan of ordinary skill to include a bridge support of Gordon et al. behind the chucking member of Takagi et al. in order to obtain the predictable result of withstanding axial thrust of the workpiece. The workpiece holder is mounted rigidly at the bridge.

j. **As to claim 11**, Takagi et al. discloses similar workpiece holders 12 & 28 (fig. 1).



k. **Regarding claims 17 & 18**, Gordon et al. discloses spindle drive having a conventionally known flywheel 37 (Fig. 1). It would have been obvious to include flywheel masses on stationary spindle drive because the flywheels store the energy to be consumed at the interface of weld pieces during the welding operation (col. 2, lines 21-23).

l. **Regarding claim 19**, Takagi et al. discloses a method of operating the welding machine providing plurality of spindle heads (3, 15) with spindles (6, 9, 24), spindle drives (1, 19) and workpiece holders (12, 28); feed drive 17 for movably mounted spindle head 15. Takagi et al. does not provide a bridge wherein a spindle is relieved of axial force and welding forces. However, Gordon et al. disclose such bridging means as shown in the drawing above. The process

claim would have been obvious for the same reasons set forth in paragraph i above.

m. **As to claim 20**, it is known in the art to remove workpiece mount from spindle. Consequently, one skilled in the art would have attached the bridge support of Gordon et al. to the chucking member 12 or 28 of Takagi et al. and thus, would have formed a desirable bridge-supported workpiece holder to yield a predictable result of relieving forging forces of the weld.

9. **Claims 8-9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al. in view of Gordon et al. as applied to claim 6 above, and further in view of Farley et al. (US 3542383).

n. Takagi et al. or Gordon et al. does not disclose the bridge having a positive-locking connection to at least one headstock. Farley et al. is directed to a chuck assembly for securing tubular workpieces in an inertia welding machine. Farley et al. discloses chuck 12 holding workpiece WP1 (fig. 1) and an inner chuck 37 having a backup plate 52 (i.e. bridge support) (Fig. 2). Farley et al. further discloses that the chuck assembly 12 is mounted upon the spindle 17 by capscrew 35 (Fig. 2). The capscrew is an equivalent of positive-locking connection with pin and openings engaging spindle head. It would have been obvious to a person of ordinary skill in the art to provide such capscrew connection in the bridge/tailstock assembly 13 of Gordon et al. in order to effectively secure the tailstock or chuck assembly.

10. **Claim 10** is rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al in view of Farley et al (US 3542383).

o. **Regarding claim 10**, it is known in the art to have workpiece holder detachably connected to a spindle. Farley et al. discloses removable chuck to permit employment of the chuck assembly with solid workpieces (claim 2). It would have been obvious to a person of ordinary skill in the art to provide detachable workpiece holder in the apparatus of Takagi et al. in order to accommodate various workpieces.

11. **Claim 12** is rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al. as applied to claim 1 above, and in view of Deemie et al. (US 3439853).

p. Takagi et al. does not disclose a second headstock having a traveling carriage mounted at frame. However, Deemie et al. (drawn to friction welding apparatus) discloses traveling carrier 72 mounted at frame 78 and connected to second workpiece WP2 (fig. 1). It would have been obvious to an artisan of ordinary skill to provide screw-driven carrier of Deemie et al. in the apparatus of Takagi et al. because small movements of the carrier, and consequently the headstock can be easily and accurately controlled (col. 4, lines 1-9).

Information Disclosure Statement

12. The information disclosure statement (IDS) submitted on 5/11/06 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEVANG PATEL whose telephone number is (571)270-3636. The examiner can normally be reached on Monday thru Thursday, 8:00 am to 5:30 pm, EST..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DP

/Jerry A Lorengo/
Supervisory Patent Examiner, Art Unit 1793